What is claimed is:

1. A method for controlling data flow in a network switch, said method comprising the steps of:

determining if a quantity of queued data for a port has exceeded a first predetermined threshold;

disabling a data flow to the port if the quantity of queued data is determined to have exceeded the first predetermined threshold; and

re-enabling the data flow to the port upon satisfying a predetermined spatial requirement and a predetermined temporal requirement.

2. A method for controlling data flow in a network switch as recited in claim 1, wherein the re-enabling data flow step further comprises the steps of:

determining if the quantity of queued data for the port is less than a second predetermined threshold;

determining if a predetermined amount of time has passed, if it is determined that the quantity of queued data for the port is less than the second predetermined threshold; and

re-enabling the data flow if the quantity of queued data for the port is less than the second predetermined threshold and the predetermined amount of time has passed.

3. A method for controlling data flow in a network switch as recited in claim 1, wherein the first predetermined threshold further comprises a high water mark for the port.

4. A method for controlling data flow in a network switch as recited in claim 1, wherein the second predetermined threshold further comprises a low water mark for the port.

5. A method for controlling data flow in a network switch, said method comprising

the steps of:

defining a preferred operational range for a port;

defining a quasi-congested operational range for the port;

defining a congested operational range for the port;

disabling a data flow to the port when the port approaches the congested operational range; and

re-enabling the port when the port reaches the preferred operational range and satisfies a predetermined temporal requirement.

5      6.      The method for controlling data flow in a port of a network switch as recited in claim 5, wherein the step of defining a preferred operational range further comprises defining the preferred operational range as the range below a predetermined low water mark for the port.

7.      The method for controlling data flow in a port of a network switch as recited

10     in claim 5, wherein the step of defining a congested operational range further comprises defining the congested operational range as the range above a predetermined high water mark for the port.

8.      The method for controlling data flow in a port of a network switch as recited in claim 5, wherein the step of defining a quasi-congested range further comprises

15     defining the quasi-congested range as the range between a low water mark and a high water mark.

9.      The method for controlling data flow in a port of a network switch as recited in claim 5, wherein the step of disabling data flow to the port when the port approaches the congested operational range further comprises the steps of:

20     determining if the port is operating in the congested operational range for the port; and

disabling data flow to the port if it is determined that the port is operating in the congested operational range for the port.

10.     The method for controlling data flow in a port of a network switch as recited

25     in claim 5, wherein the step of re-enabling data flow to the port when the port reaches the preferred operational range further comprises the steps of:

determining if the port is operating in the preferred operational range for the port;

determining if a predetermined amount of time has expired; and

30     re-enabling data flow to the port if it is determined that the port is operating in the preferred operational range for the port and the predetermined amount of time

has expired.

11. The method for controlling data flow in a port of a network switch as recited in claim 10, wherein the step of determining if a predetermined amount of time has expired further comprises the steps of:

5         defining a predetermined amount of time;

starting a timer when the port enters the preferred operational range; and

determining if the timer has exceeded the predetermined amount of time.

12. A method for controlling data flow in a network switch, said method comprising the steps of:

10         monitoring a quantity of data queued to be transmitted by a port;

determining if the quantity of data queued has exceeded a high water mark;

disabling a data flow into a port queue if the quantity of data queued is determined to have exceeded the high water mark;

determining if the quantity of data queued has fallen below a low water mark;

15         determining if a predetermined amount of time has passed, if the quantity of data queued has fallen below the low water mark; and

re-enabling data flow into the queue, if it is determined that the quantity of data has fallen below the low water mark and the predetermined amount of time has passed.

20 13. An apparatus for controlling data flow in a network switch, said apparatus comprising:

means for determining if a quantity of queued data for a port has exceeded a first predetermined threshold;

means for disabling a data flow to the port if the quantity of queued data is

25 determined to have exceeded the first predetermined threshold; and

means for re-enabling the data flow to the port upon satisfying a predetermined spatial requirement and a predetermined temporal requirement.

14. An apparatus for controlling data flow in a network switch as recited in claim 13, wherein said means for determining further comprises a memory management

30 unit.

15. An apparatus for controlling data flow in a network switch as recited in claim

13, wherein said means for determining further comprises a status location budget manager.

16.    An apparatus for controlling data flow in a network switch as recited in claim 13, wherein said means for disabling data flow further comprises a status location budget manager.

17.    An apparatus for controlling data flow in a network switch as recited in claim 13, wherein said means for re-enabling data flow further comprises a status location budget manager.

18.    An apparatus for controlling data flow in a network switch as recited in claim 13, wherein said first predetermined threshold further comprises a high water mark.

19.    An apparatus for controlling data flow in a network switch as recited in claim 13, wherein said predetermined spatial requirement further comprises a low water mark.

20.    An network switch comprising:

at least one data port interface;

at least one queue in connection with the at least one data port interface for receiving data transmitted to the at least one data port interface; and

a memory management unit in connection with the at least one queue,

wherein the memory management unit disables a data flow to a queue when a level of data in the queue reaches a predetermined threshold, and thereafter re-enables data flow to the queue when the level of data in the queue reaches a second predetermined threshold and a predetermined amount of time has passed.

21.    A network switch as recited in claim 20, wherein said first predetermined threshold further comprises a high water mark.

22.    A network switch as recited in claim 20, wherein said second predetermined threshold further comprises a low water mark.

23.    A network switch as recited in claim 20, wherein said memory management unit further comprises a status location budget manager.